

CLAIMS

WHAT IS CLAIMED IS:

1. A method of making a probe card assembly comprising:
providing a first component of said probe card assembly as a premanufactured component, said first component comprising a predetermined wiring pattern with contacts on a surface of said first component,
thereafter receiving design data regarding a semiconductor device to be tested by said probe card assembly, said design data including locations of test points on said semiconductor device,
adding one or more customization layers to said surface of said first component,
adding a plurality of probes for contacting said test points on said semiconductor device to an outer one of said customization layers, said customization layers electrically connecting selected ones of said contacts on said surface of said first component with selected ones of said plurality of probes, and
combining said first component with at least one other component to form said probe card assembly.
2. The method of claim 1 further including customizing another surface of said first component in accordance with said design data.
3. The method of claim 1, wherein at least one of said test points protrudes from a surface of said semiconductor device, and said plurality of probes includes at least one corresponding probe configured to contact said protruding test point.

4. The method of claim 3, wherein said at least one corresponding probe is selected from a group consisting of a pad, a recess, and a socket.
5. The method of claim 1, wherein said customization layers include at least one embedded electrical circuit element.
6. The method of claim 1, wherein said step of providing said first component further includes providing a plurality of said first components each premanufactured in accordance with one of a plurality of predetermined designs.
7. The method of claim 6, further including, before performing said steps of adding one or more customization layers and adding a plurality of probes, selecting one of said plurality of said first components in accordance with said design data.
8. The method of claim 1 further comprising providing at least one additional component of said probe card assembly as a premanufactured component, said premanufactured component being premanufactured in accordance with a predetermined design for said premanufactured component.
9. The method of claim 8, wherein said combining step further includes combining said at least one premanufactured component with said first component.
10. The method of claim 8 further comprising, after receiving said design data, customizing said at least one premanufactured component in accordance with said design

data, and wherein said combining step further includes combining said at least one premanufactured component with said first component.

11. The method of claim 8, wherein said at least one additional component is one of a probe head, a printed circuit board configured to make electrical connections with a semiconductor tester, an interposer, and an interface with a cable from a semiconductor tester.

12. The method of claim 8, wherein at least one of said first component and said at least one additional component comprises a substrate and a plurality of embedded planelets.

13. The method of claim 12, wherein said step of customizing further includes electrically connecting selected ones of said planelets.

14. The method of claim 12, wherein ones of said planelets are electrically connected to a first voltage level, and others of said planelets are electrically connected to a second voltage level.

15. The method of claim 14, wherein said first voltage level is ground.

16. The method of claim 12, wherein sets of said plurality of planelets are disposed to decouple a power source.

17. The method of claim 12, wherein said planelets are disposed so as to affect an impedance of at least one signal path within said at least one of said first component and said at least one additional component.

18. The method of claim 17, wherein said step of customizing further includes activating selected ones of said planelets.

19. The method of claim 12, wherein at least one of said first component and said at least one additional component comprises a substrate and a plurality of imbedded circuit elements.

20. The method of claim 19, wherein said step of customizing further includes activating selected ones of said circuit elements.

21. The method of claim 1, wherein said combining step is performed before at least one of said step of adding one or more customization layers and said step of adding a plurality of probes.

22. The method of claim 1, wherein said customization layers include at least two layers, and said layers are added to said first component one layer at a time.

23. The method of claim 1, wherein said customization layers include at least two layers, and said layers are formed apart from said first component and then joined to said first component.

24. A probe card assembly made using the method of one of claims 1 through 23.